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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
|-----------------|-------------|----------------------|---------------------|
| 09/603,053 | 06/26/00 | SHIMANUKI | H CSC-018 |

000959
LAHIVE & COCKFIELD
28 STATE STREET
BOSTON MA 02109

IM52/1109

EXAMINER

CREPEAU, J

ART UNIT

PAPER NUMBER

1745

DATE MAILED: 11/09/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

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Office Action Summary

Application No.

09/603,053

Applicant(s)

SHIMANUKI ET AL.

Examiner

Jonathan S. Crepeau

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, 7, 8, and 10-13 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 6-176784. In Figures 1, 2, and 4, the reference generally teaches a fuel cell system comprising a gas/liquid separator (heat exchanger 2) for recovering water from components discharged from the fuel cell. A cooling medium (water) is circulated to the separator in a closed cooling loop. In paragraph [0030] of the computer-generated translation, the reference teaches temperature (13) and flowrate (14) detecting means of the cooling water entering the heat exchanger. A controller (15) controls a valve (12) in response to these detected values, thereby controlling the flowrate and temperature of the cooling water (see paragraphs [0028]-[0031]). As disclosed in paragraphs [0035] and [0036], the rotational speed of the centrifugal pump (4A) may be controlled instead of the valve.

Thus, the instant claims are anticipated.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 1745

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 5, 6, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 6-176784 in view of Goto (U.S. Patent 6,087,028).

The Japanese reference is applied to claims 1-4, 7, 8, and 10-13 for the reasons stated in section 2 above. Additionally, the reference teaches in paragraphs [0010] and [0011] that a problem to be solved by the invention is the uneven transfer of heat caused by the seasonal changes in temperature of the cooling water passing through the cooling tower (3).

The Japanese reference does not expressly teach a radiator in combination with a cooling fan which functions to control the temperature of the cooling water in the cooling loop.

The patent of Goto is generally directed to a cooling system for a fuel cell stack having a closed cooling water loop. As taught in the abstract and Figure 1, the temperature and flowrate of the cooling water are controlled by a fan/radiator system (24, 26) and pump (30), respectively, in response to the sensed temperatures (32, 34) in the coolant loop.

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated to use the fan/radiator system of Goto in place of the cooling tower of the Japanese reference. As set forth above, the Japanese reference identifies the control of temperature in the coolant loop as a problem in prior art systems. Therefore, the artisan could reasonably look to the disclosure of Goto for an additional solution to this problem. As disclosed in column 11, lines 30-59 of Goto, the fan and radiator are useful in providing precise temperature control of the cooling water and

Art Unit: 1745

fuel cell. Accordingly, the artisan would be motivated to use such a radiator and fan in the system of the Japanese reference in an attempt to more precisely control the temperature of the cooling water (i.e., keep it at its set point). It is further noted that there appears to be a symbol denoting a fan in the schematic of the cooling tower (3) in the Japanese reference, which would give the artisan a further suggestion to use a radiator/fan system. Accordingly, these limitations are not considered to distinguish over the references.

Conclusion

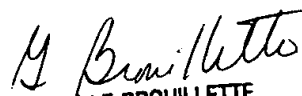
5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (703) 305-0051. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gabrielle Brouillette, can be reached at (703) 308-0756. The phone number for the organization where this application or proceeding is assigned is (703) 305-5900. Additionally, documents may be faxed to (703) 305-3599.

Any inquiry of general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

JSC

November 6, 2001


GABRIELLE BROUILLETTE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700